

Internalisation of ISO 9000 standards: the antecedent role of functionalist and institutionalist drivers and performance implications†

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This study presents an investigation of the relationship between motivation for ISO 9000 certification and internalisation of practices underlying ISO 9000 standards. We use the theoretical lenses of resource-based view and institutional theory to develop our research hypotheses linking motivation with internalisation of ISO 9000 standards. These theories also provide a cogent means to understand the findings from the study. Further, the study presents the performance implications of internationalisation of ISO 9000 standards. A path model is developed that link motivation, internalisation of ISO 9000 standards and performance. Survey data from 281 ISO 9001 certified manufacturing and service organisations in Australia is used to test the research hypotheses of the study. The results suggest that internalisation of practices underlying ISO 9000 standards is affected by functionalist and institutionalist drivers. We find that internalisation of ISO 9000 standards is positively associated with operational performance, and operational performance, in turn, is positively associated with business performance. A closer examination by splitting the sample between high and low performing firms reveals that internalisation of ISO 9000 standards is associated with both functionalist and institutionalist motives in low performing firms, whereas only functionalist driver influence the internalisation of ISO 9000 standards in high performing firms. We offer theoretical and managerial implications of our findings.

Keywords: ISO 9000; quality management; internalisation; performance; resource-based view; institutional theory; structural equation modeling

1. Introduction

Over the last two decades there has been a steady increase in the number of countries that have adopted ISO 9000 as their national quality standard. Several organisations within these countries have gone through the certification process. Corresponding to this movement, research on various themes related to ISO 9000 has proliferated. Most of the earlier studies on ISO 9000 are descriptive where the researchers sought to investigate the main reasons and benefits of being certified to the standard (Brown and Van der Wiele 1995, Bettie and Sohal 1999, Casadesus *et al.* 2001). Another group of studies

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have attempted to link the reasons for certification and the benefits accrued (Lee 1995, Jones *et al.* 1997, Singels *et al.* 2001, Gotzamani and Tsiotras 2002, Chow-Chua *et al.* 2003, Williams 2004). As the understanding of ISO 9000 increased, the focus has shifted from reasons or motives for certification to internalisation of practices underlying ISO 9000 standards. Some recent studies have investigated the relationship between the internalisation process and the benefits realised from ISO 9000 (Arauz and Suzuki 2004, Naveh and Marcus 2004, Briscoe *et al.* 2005).

To the best of our knowledge, none of the studies consider a holistic framework that links the motivation for implementing ISO 9000 standards, the internalisation of practices underlying ISO 9000 standards, and operational and business level performance. Firms adopt ISO 9000 standards for two distinct reasons. On the one hand, ISO 9000 standards provide a set of generic guidelines that potentially result in improved processes. ISO 9000 standards give a high degree of emphasis to documentation, which enables better communication of process details across an organisation. Firms viewing ISO 9000 from this perspective adopt the standard to gain advantages of streamlined and well-documented processes. Given that these internal motives are aimed at enhancing the functional and process competence of organisations, we refer to these internal motives for ISO 9000 implementation as *functionalist drivers*.

On the other hand, ISO 9000 certification also positively reflects on the quality image of a firm, motivating several firms to adopt ISO 9000 standards for enhancing their corporate brand equity. Further external entities, such as competitors, customers and regulatory agencies, could influence the need for ISO 9000 implementation. Several firms have adopted ISO 9000 standards to take advantage of these externally oriented motives (Williams 2004). Owing to the macro-institutional foundations of these external motives, we refer to them as *institutional drivers*.

Internalisation of ISO 9000 standards entails an active use of underlying practices to modify behaviour and decision making. Lasting improvement from the internalisation of ISO 9000 standards requires that the ISO 9000 practices are included in daily practice (Huang *et al.* 1999, Naveh and Marcus 2004, Briscoe *et al.* 2005). Internalisation of ISO 9000 practices covers aspects such as training of employees, organisation-wide communication of policies, extensive documentation of processes and using the ISO 9000 practices as a basis for continuous improvement. It can be reasoned that the functionalist and institutionalist drivers play a role in internalisation of ISO 9000 practices. On one hand, ISO 9000 practices may be internalised to utilise its basic aspects to strategically and operationally manage quality. Meanwhile, institutional pressure due to customers, competitors, buyers and industrial policies may strengthen the resolve of an organisation to internalise ISO 9000 practices. Currently, extant literature lack clarity in terms of how these two drivers impact internalisation of ISO 9000 standards. Also, it is unclear if there is a difference between the impacts of functionalist and institutionalist drivers on internalisation among high and low performing firms. An understanding of the nature of the relationship between underlying motives and internalisation of ISO 9000 standards is important from both a theoretical and a practical standpoint. From the theoretical perspective, the answers would explain the confounding links between ISO 9000 standards and performance and enhance our overall knowledge base in this area. On the practical front, the answers provide directions for managers to appropriately evaluate their ISO 9000 certification motives and to pay careful attention to internalisation of ISO 9000 standards. Firms can have a better understanding of how performance is shaped from internalisation of ISO 9000 standards.

By means of this study, we seek to address this issue. Specifically, in this study we examine the role played by functionalist and institutionalist drivers on the internalisation of practices underlying ISO 9000 standards. Further, we investigate the implications of internalisation of ISO 9000 standards on performance. We address the following research questions.

- How do functionalist and institutionalist drivers influence the internalisation of ISO 9000 standards?
- How is internalisation of ISO 9000 standards associated with operational and business performance?
- Is there a systematic difference in the association of functionalist and institutionalist drivers with internalisation of ISO 9000 standards among high and low performing firms?

We invoke theoretical arguments from the resource-based view and institutional theory to examine the association of functionalist and institutionalist drivers with internalisation of ISO 9000 standards. The research issues highlighted are investigated by utilising survey responses from middle and senior managers working in ISO 9001 certified manufacturing as well as service organisations in Australia. Specifically, we use structural equation modelling (SEM) to examine our research hypotheses. Separate tests for high-performing and low-performing firms are also undertaken to examine any systematic variations in the links.

The rest of the paper is structured as follows. In the next section we develop our research hypotheses by building on theory. The third section provides details regarding the research design and in the fourth section we analyse the data and present our results. In the fifth section we discuss the results, limitations of the study and present theoretical and managerial implications. Finally, in the sixth section we conclude and present directions for future research.

2. Theory development

In this section we first explain the notion of internalisation in the context of ISO 9000 certification. Subsequently, we develop our research hypotheses linking underlying motivations for ISO 9000 certification with the internalisation of ISO 9000 standards.

2.1. Internalisation of ISO 9000 standards

Management control systems, such as those underlying ISO 9000 standards, comprise explicit and implicit forms of embedded knowledge (Nonaka 1994). Explicit knowledge represents the codified version of the information that can be stored and transmitted using formal and systematic means. Tacit knowledge is embedded among the users of the system and is created due to the assimilation of underlying practices in the management control system. Using the tacit–explicit dichotomy, Nonaka (1994) suggests four modes for transforming information into knowledge: socialisation, combination, externalisation and internalisation. Internalisation is particularly relevant to the examination of ISO 9000 standards as it represents, “the process of absorbing both tacit and explicit information into the organisation and translating it into knowledge, which is then applied to purpose” (Knight and Liesch 2002). As per the internalisation mode of transformation,

tacit and explicit information and knowledge complement each other and they can expand over time through the process of mutual interactions (Nonaka 1994).

In an organisation, internalisation of ISO 9000 standards relates to the adoption of its underlying practices by managers and decision makers in their daily use (Briscoe *et al.* 2005, Naveh and Marcus 2005). In recent years, research studies have emphasised the need for internalising ISO 9000 standards to achieve performance benefits (Rao *et al.* 1997, Huarng *et al.* 1999, Ismail and Hashmi 1999, Lee and Palmer 1999, Briscoe *et al.* 2005). Internalisation of ISO 9000 standards ensures that it is not implemented as a latest fad but instead is aimed at fostering strategic quality management to enable streamlined operations and continuous process improvement.

2.2. Motives for ISO 9000 certification – institutional theory perspective

Several firms undertake ISO 9000 certification to enhance their quality reputation or to fulfill expectations from the customer. The underlying motive for certification has an external orientation in the sense that firms implement ISO 9000 out of external pressures, mainly clients' demands. Institutional theory suggests that social and environmental factors play an important role in creating an isomorphic effect which influences the adoption of certain technology, practices, or management structures among organisations in seeking their legitimacy (Meyer and Rowan 1977). According to DiMaggio and Powell (1983), the isomorphic effect can arise due to three factors: coercive, mimetic, and normative. "Coercive pressure came from formal and external pressures exerted upon organisations by other organisations upon which they are dependent, and the cultural expectations in the society within which the organisations function" (p. 150). Mimetic isomorphism results as organisations respond to uncertainty in the business environment by mimicking actions of other organisations, and normative isomorphism "stems primarily from professionalisation which is concerned with firms' struggle in establishing legitimation for their occupational autonomy" (p. 152).

A review of the literature on ISO 9000 suggests that the three elements – coercive, mimetic and normative – of institutional pressures have played significant roles in the adoption of ISO 9000 standards. Coercive pressures for ISO 9000 have been reflected in a number of ways. The regulatory environment set by government's policy (e.g. as a basic requirement for the tendering process) has played an active role in increasing the number of certified organisations (Hockman 1992, Anderson *et al.* 1999, Guler *et al.* 2002). Customers (most of which are large multinational firms) also played a coercive role by demanding their suppliers to pursue certification (Cullingworth 1992, Heller 1993, Henkoff 1993, Zuckerman 1999). Mimetic pressures for ISO 9000 standards relate to the need to pursue ISO 9000 certification simply to match competitors' action (Llopis and Tari 2003, Williams 2004). This phenomenon arose in parallel with the emergence of the quality movement in the 1990s where many companies adopted TQM simply to follow other firms who claimed significant benefits from implementing quality management practices (Powell 1995). Finally, normative pressures of ISO 9000 standards are reflected mainly in firms' perceptions that certification will enhance their reputation (Buttle 1997, Jones *et al.* 1997).

By and large, institutionalist drivers will lead firms to adopt ISO 9000 standard to comply with external pressures in search for legitimacy in the business environment (Carlsson and Carlsson 1996, Vloeberghs and Bellens 1996, Jones *et al.* 1997). Firms driven by this perspective would expect that the certification in its own right will

produce benefits. As a result, certification is considered as the ultimate goal of adopting ISO 9000 rather than as part of a long-term journey in managing quality (Askey and Dale 1994). Despite these concerns, firms driven by the institutionalist paradigm are still required to put a minimum degree of effort in implementing ISO 9000 standards in the sense that they have to demonstrate the conformance of their documented procedures and practices with the requirement of the standards. Accordingly, we hypothesise:

Hypothesis 1. The institutionalist driver has a direct positive relationship with internalisation of ISO 9000 standards.

2.3. *Motives for ISO 9000 certification – resource-based view*

ISO 9000 implementation has been credited with improved quality and productivity of organisations and several firms undertake the implementation of ISO 9000 driven by the objectives of improving internal operations (Yahya and Goh 2001, Llopis and Tari 2003). These internal motives, namely functionalist drivers, are focused on adopting the structured approach of ISO 9000 to build an effective and proven quality assurance program that includes procedure documentation and monitoring, operation traceability, error reduction, client communication, and after-sales service (Boiral 2003, p. 727). Functionalist drivers foster a quality culture within an organisation, whereby ISO 9000 implementation receives the commitment and support from top management (Carlsson and Carlsson 1996), all members of the firm are aware of quality management objectives and principles (Arauz and Suzuki 2004) and there is a widespread use of the ISO 9000 standards as the model for managing a quality system in daily practices (Naveh and Marcus 2005).

In recent years, several research studies have argued for a greater integration of ISO 9000 with TQM or continuous improvement (Whitford *et al.* 1994, Meegan and Taylor 1997, Sun 1999, Magd and Curry 2003, Martinez-Lorente and Martinez-Costa 2004). This integration need has been reinforced with the revised version of ISO 9000:2000, which requires firms to shift from a compliance attitude to an improvement attitude (Hoyle 2000). This is reflected in the audit process which now explicitly evaluates the level of continuous improvement within the organisation (West *et al.* 1999, West 2002). Functionalist drivers for the internalisation of ISO 9000 standards are therefore congruent with the continuous improvement objectives. As such, ISO 9000 is implemented in a dynamic way where the system is continually improved rather than maintaining it at the minimum level of compliance to the standard.

Hypothesis 2. The functionalist driver has a direct positive relationship with the internalisation of ISO 9000 standards

2.4. *Performance implications of the internalisation of ISO 9000 standards*

The literature that considers the relationship between ISO 9000 certification and organisational performance has reported mixed results. For example, Terziovski *et al.* (1997) find no link between ISO 9000 and organisational performance among Australian firms. Similarly, Singels *et al.* (2001) fail to find a link between ISO 9000 and organisational performance among Dutch firms. On the other hand, Terziovski *et al.* (2003) find a positive association between motivations for seeking ISO 9000 certification

and reported business performance. Casadesús *et al.* (2001) find a significant positive association between ISO 9000 certification and operational as well as financial performance among Basque companies. Briscoe *et al.* (2005) examine the relationship between ISO 9000 internalisation and quality and financial performance among small US and Canadian companies. The authors find that greater internalisation of ISO 9000 standards leads to higher performance.

Event studies by Lima de Oliveira (1999) and Martinez-Costa and Martinez-Lorente (2003) find that ISO 9000 certification has no effect on financial performance in Brazilian and Spanish companies. In a separate event study on Spanish companies, Nicolau and Sellers (2002) find a positive stock price effect on the day of certification only. Docking and Downen (1999) find that small firms in the US experienced a positive stock price reaction to the announcement of their first ISO 9000 certification, however the stock price of large firms did not show a positive reaction. Simmons and White (1999) find a significant association between ISO 9000 certification and financial performance among US firms within the electronics industry. Using data from the Basque region, Heras *et al.* (2002) find a significant association between the profitability of a firm and its likelihood of implementing ISO 9000 standards. However, the study failed to find a significant association between ISO 9000 internalisation and subsequent profitability. In a recent event study, Corbett *et al.* (2005) find that publicly traded manufacturing firms in the US experience abnormal improvements in financial performance as a result of their first ISO 9000 implementation.

In this study our focus is on the internalisation of ISO 9000 standards. The scope of ISO 9000 standards (particularly ISO 9001) is primarily intended to demonstrate a firm's capability to meet customer requirements. Therefore, the primary focus is to achieve quality of products which conforms to specifications set by customers. While this does not mean that the practices prescribed in ISO 9000 will themselves produce high performance, they provide guidance for firms in their efforts for improving quality performance (Corbett *et al.* 2005). This is achieved by internalising ISO 9000 into the firm's quality management system by means of adapting the daily practices and operating procedures to the requirements of ISO 9000 standards (Naveh and Marcus 2005). The daily usage of a sound quality management system will create consistency in the outputs produced by the processes, hence improving the quality of the products in terms of conformance to specification. A number of studies have shown the positive effect of the internalisation of ISO 9000 standards on product quality (Elmuti and Kathawala 1997, Jones *et al.* 1997). The achievement of high quality in terms of conformance to specification will positively affect other aspects of operational performance. For example, it results in less defects or reworks and hence results in improved productivity (Deming 1982, Garvin 1988, Mann and Kehoe 1994). Less defects or reworks also results in less operating cost (Juran and Gyrna 1993, Hackman and Wageman 1995). Accordingly, we hypothesise:

Hypothesis 3. Internalisation of ISO 9000 standards is positively related to improved operational performance.

While several studies have shown the positive effect of ISO 9000 on business performance (Docking and Downen 1999, Nicolau and Sellers 2002, Corbett *et al.* 2005), we contend that such an effect is a result of the operational performance derived by adopting ISO 9000 practices (Naveh and Marcus 2004). The link between operational performance and business performance is rooted back to the work of Skinner (1969). Skinner's work lays a foundation for the use of operations strategy and performance as an

organisational resource to achieve competitive advantage by means of improved business performance. During the 1980s and 1990s, the competitive advantage of firms (particularly Japanese manufacturing organisations) is commonly attributed to three core operational performance measures, namely quality, cost, and delivery (Imai 1986). Taking recourse to the resource-based view, we argue that, unlike certification, internalisation of ISO 9000 practices is something which will be difficult for competitors to imitate. The inimitability is translated into improved operational performance and, consequently, business performance. Maani *et al.* (1994) suggest that improved quality performance has a positive impact on operational performance (e.g. production cost, on-time delivery, lead time, and productivity), which, in turn, significantly affects business performance (i.e. ROS, ROA, sales volume, market share). Several studies using the PIMS database also found that quality improvements have a positive impact on profitability through cost reduction and increased market share (Philips *et al.* 1983, Buzzels and Gale 1987, Kroll *et al.* 1999). Accordingly, we hypothesise:

Hypothesis 4. Operational performance is positively related to business performance.

2.5. Differentiating high and low performing firms

The literature on ISO 9000 has shown that not all firms certified to the standard have seen the benefits in terms of improved performance. Indeed, many firms have expressed their disillusion with the standard. Studies have noted the disappointment experienced by certified firms as it failed to deliver significant benefits to their business (e.g. Lima de Oliveira (1999) and Martinez-Costa and Martinez-Lorente (2003)). Given this evidence of a lack of performance benefits from ISO 9000 implementation, we investigate if this can be explained in terms of the inherent motivation to internalise ISO 9000 standards. Specifically, to gain further insight we examine if the association of institutionalist and functionalist drivers with the internalisation of ISO 9000 standards is systematically distinct for high and low performing firms.

Prior research studies suggest that firms that pursue ISO 9000 certification for internal reasons obtain greater benefits than those pursuing it due to external reasons (Lee 1995, Jones *et al.* 1997, Singels *et al.* 2001). This implies that the internalisation of ISO 9000 standards in high performing firms is influenced more by the functionalist driver than by the institutionalist driver. High performing firms are focused on leveraging ISO 9000 as an organisational resource with the aim primarily being to achieve operational improvement rather than simply expecting an increase in sales from the certification (Boiral 2003). From the functionalist perspective the quality system based on ISO 9000 brings about substantial improvements to an organisation due to the precise application of explicit, rational, and proven rules. Further, internalisation of ISO 9000 standards from a functionalist perspective provides an excellent way of promoting total quality in the workplace (Rao *et al.* 1997, Quazi and Padibjo 1998); certification is merely considered to be a by-product of internalisation of ISO 9000 standards.

Compared with high performing firms, the need to conform to institutional pressures would be greater for low performing firms (Anderson *et al.* 1999, Yeung *et al.* 2003). For these firms the motivation for seeking legitimacy can easily overshadow the purpose of building a sound quality management system. Firms driven by the institutionalist perspective would expect that the certification in its own right will produce benefits for the firm. Firms thereby adopt a minimalist approach (Brown and Van der Wiele 1996)

in implementing ISO 9000 standards and simply meet the requirements at the minimum level, often taking a short cut approach in attaining the certification. In his study, Boiral (2003, p. 732) found that firms adopting ISO 9000 standards from an institutionalist perspective “integrated their quality system superficially so that the organisation could pass the certification audit without posing serious questions that were seen to be unnecessary and undesirable”. This often results in a discrepancy between the written document and daily practices. With regards to the maintenance of the quality system, they often prepare for external (surveillance) audits at the last minute and once the audit process ends, they fall back into old practices (Askey and Dale 1994). We postulate that the institutionalist (functionalist) driver plays a greater role in the internalisation of ISO 9000 practices among low (high) performing firms and test the following hypotheses.

Hypothesis 5. The relationship between the institutionalist driver and the internalisation of ISO 9000 standards is stronger among low performing firms than among high performing firms.

Hypothesis 6. The relationship between functionalist drivers and internalisation of ISO 9000 standards is stronger among high performing firms than among low performing firms.

3. Research design

In this section we present details regarding the sampling frame, data collection procedure, respondent profiles and the measures used in the operationalisation of key constructs.

3.1. Sample and procedures

The companies participating in this study were selected from a Joint Accreditation System–Australia and New Zealand (JAS-ANZ) database, which lists all companies that are certified to ISO 9001 in Australia and New Zealand. Of a total of 10,015 companies, 1300 companies were randomly selected on the condition that they were based in Australia and their listing in the database included complete information regarding the company's name, postal address, as well as information regarding a contact person complete with name, phone number and email address. The latter items were important so as to allow for a follow-up/reminder letter to be sent to all participating companies. Upon selection, each company was sent a questionnaire, and asked to pass it to the manager who had knowledge and responsibility for the internalisation and maintenance of the company's quality system. In total, 328 questionnaires were returned, constituting a 25% response rate. After deleting the cases that had missing values for the measures we use in this study, 281 usable responses were considered for further analysis.

3.2. Profile of the respondents

The sample companies can be broken up into two overarching categories: manufacturing and non-manufacturing (approximately 50/50). The manufacturing category captures most sectors under the ANZIC code, including food, textile, wood, printing, mineral, metal, and machinery. In terms of organisational size, two-thirds of the sample was made up of small to medium sized companies with 50% of the firms employing

Table 1. Position of the respondents.

Position of respondents	Responses (%)
Quality managers	38.8
Quality officers (non-managerial)	2.3
Production/operations managers	17.8
Director/CEO/general managers	16.0
Other managerial positions	12.8
Other non-managerial positions	3.2
Missing values	9.1
Total	100

less than 50 people. Twenty-two percent of the firms employed between 100 and 500 employees and the remaining 10% of firms employed more than 500 people. A large number of respondents were middle to senior level managers with 39% being quality managers, 18% being production/operations managers, 13% being managers from different areas, including human resources and finances, and 16% being directors, CEOs or general managers. Only 5% of the respondents did not have managerial positions in the firms. This sample proportion is reasonable given the objectives of this study. The position of the respondents is tabulated in Table 1.

Within the sample, the earliest certification was in 1984 and the most recent one took place in 2006. On average, the firms in the sample were certified for nine years.

3.3. Measures

All items used to build the scales in this study were derived from past studies on ISO 9000. We built the scales for institutionalist and functionalist drivers from empirical studies examining the reasons for seeking ISO 9000 certification (Jones *et al.* 1997, Huarng *et al.* 1999, Fuentes *et al.* 2000, Singels *et al.* 2001, Gotzamani and Tsiotras 2002, Llopis and Tari 2003, Arauz and Suzuki 2004, Williams 2004). For the institutionalist driver, we selected five items to represent coercive isomorphism (i.e. to meet customers' demands and to comply with industry policies or regulations), mimetic isomorphism (i.e. to match competitors' actions), and normative isomorphism (i.e. to enhance the company's image and to gain preferred supplier status). The items for functionalist drivers were derived from what are commonly considered as internal reasons for implementing ISO 9000. These motives are based on the belief that the standards will provide a foundation on which the firm can manage its business operating system and provide a formal mechanism for continuously improving the system and the performance as part of the overall strategy of the firm (Hoyle 2000). Specifically, in this study, functionalist drivers are captured in five items. These items characterise a firm's motivation to combat poor quality performance, to build a foundation for a systematic management, to have better control of operations of the business, to provide a foundation for continuous improvement, and to realise the company's strategy for pursuing quality.

For internalisation of ISO 9000 standards we adapted the measures used in past studies (Arauz and Suzuki 2004, Briscoe *et al.* 2005, Naveh and Marcus 2005). These include training all employees regarding total quality concepts and ISO 9000 requirements,

explaining to employees the company's quality policy, objectives, and procedures, clearly documenting the quality policy and procedures for quality management and continuously updating them, maintaining daily practices to comply with the documented procedures based on the ISO 9000 requirements, and conducting an internal audit regularly for continuous improvement of processes.

Similar to other studies (such as Naveh *et al.* (2004)), we included four elements of operational performance – product performance, product innovation, on time delivery, and cost effectiveness. For business performance, we capture three common measures which have been used in other empirical studies (Curkovic *et al.* 2000b, Naveh *et al.* 2004) – sales, profit, and market share. Respondents provided their perceived rating of various performance measures relative to the firm's industry. Past studies have shown that perceived performance measures are consistent with objective internal performance and with external secondary data (Curkovic *et al.* 2000a, p. 395). Several studies (Forker *et al.* 1996, Tan *et al.* 2002, Tracey *et al.* 2005) have employed a subjective assessment for business performance and have shown that the method can yield useful insights. We used a five-point Likert scale in the survey questionnaire to capture the motivation, internalisation and performance constructs. For the institutionalist driver, functionalist driver, and internalisation of ISO 9000 standards the scales range from 1 (strongly disagree) to 5 (strongly agree). For operational performance and business performance the scales range from 1 (weakest in the industry) to 5 (strongest in the industry). The questionnaire items used to operationalise the key constructs are presented in Appendix 1.

4. Data analysis

4.1. Scale validity and reliability

We used confirmatory factor analysis to simultaneously validate the measures of institutional/functional drivers, internalisation of ISO 9000 practices, operational performance and business performance. The items loaded significantly on their respective constructs. The item loadings and the overall model fit results ($\chi^2 = 330.59$, d.f. = 195, RMSEA = 0.050, NFI = 0.917, CFI = 0.961, GFI = 0.903) suggest acceptable unidimensionality and convergent validity for the measures (Carmines and McIver 1981, Bollen 1989, Bagozzi *et al.* 1991, Hoskisson *et al.* 1993). Cronbach's alpha suggests satisfactory reliability of the six constructs (Nunnally 1978). The results of the confirmatory factor analysis and the Cronbach's alpha are presented in Table 2.

We used Harman's single-factor test to check for common method variance (Podsakoff and Organ 1986). This test was conducted using principal component analysis and loading all 22 items on one factor. The test checks if one single factor would emerge from factor analysis, which would point towards the presence of common method bias. The factor analysis indicated that only 25% variance was extracted and that half of the items suffered from poor factor loadings, well below 0.5. These results suggest that common method variance was not a significant problem in the data set.

As an additional check, we conducted discriminant validity analysis to examine if the explanatory (functionalist and institutionalist drivers) and dependent (performance) constructs significantly overlap each other. As suggested by Venkatraman (1989), discriminant validity was established by conducting Confirmatory Factor Analysis (CFA) on each pair of the constructs in this study. For each pair, CFA was conducted twice.

Table 2. Confirmatory factor analysis.

Drivers	Std loading	t-Value
Institutional driver (Crobanch's alpha = 0.68)		
To meet customer's demands	0.59	80.87
To match competitors' actions	0.44	60.39
To enhance the company's image	0.58	80.73
To gain preferred supplier status	0.64	9.64
To comply with industry policies or regulations	0.52	7.75
Functional driver (Crobanch's alpha = 0.85)		
To combat poor quality performance	0.54	9.53
To build a foundation for a systematic management	0.88	18.29
To have better control of operations of the business	0.92	19.55
To provide a foundation for continuous improvement	0.79	15.57
To realise the company's strategy for pursuing quality	0.56	9.76
Internalisation of ISO 9000 (Crobanch's alpha = 0.82)		
All employees were trained in total quality concepts and ISO 9000 requirements during the implementation process	0.61	9.90
Our company's quality policy, objectives, and procedures were explained clearly to all employees	0.67	11.27
We clearly documented the quality policy and procedures for quality management and continuously update them	0.76	13.25
We always maintain our daily practices to comply with the documented procedures based on the ISO 9000 requirements	0.66	10.95
We conduct an internal audit regularly and the results are used as a basis for improving our processes	0.70	11.74
Performance		
Operational performance (Crobanch's alpha = 0.78)		
Product performance	0.70	12.38
Product innovation	0.63	10.83
Cost effectiveness	0.70	12.46
On-time delivery	0.70	12.39
Business performance (Crobanch's alpha = 0.81)		
Sales	0.70	12.03
Profitability	0.77	13.83
Market share	0.73	12.75

Overall model fit: chi-square = 330.59, d.f. = 195, RMSEA = 0.050, NFI = 0.917, CFI = 0.961, GFI = 0.903.

The first CFA allowed the correlation between the two constructs to be freely estimated. The chi-square value of this model was estimated. In the second CFA the correlation between the two constructs was fixed to 1.0, and the chi-square value of this model was estimated. If the difference between the chi-squares obtained from the first and second CFA (i.e. $\Delta\chi^2$) is greater than the chi-square value at a degree of freedom of 1 and significance level of $p < 0.01$ (i.e. 6.64), this provides reasonable evidence of discriminant validity of the constructs (Ahire *et al.* 1996). With five constructs incorporated in this study, we conducted 10 chi-square tests. The values of $\Delta\chi^2$ for *all* tests confirm the discriminant validity of the constructs and lend further evidence towards the lack of common method variance.

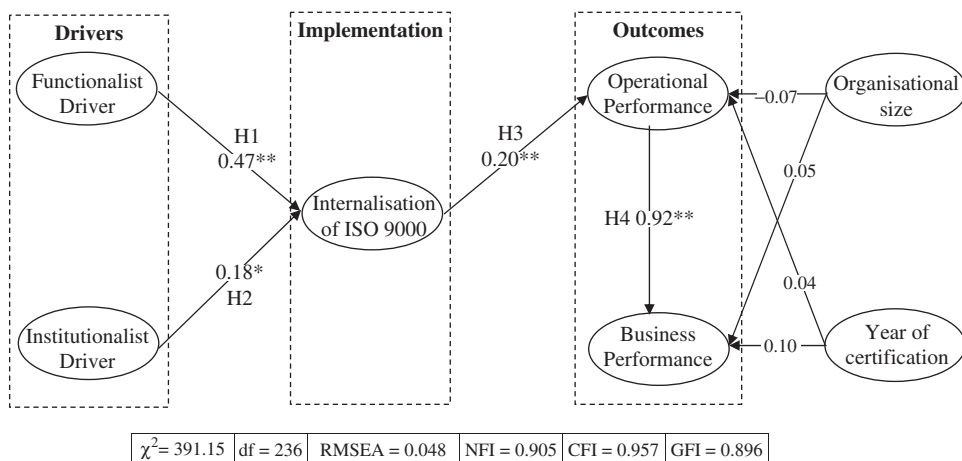


Figure 1. Path diagram. **: ($p < 0.01$); *: ($p < 0.05$).

4.2. Structural model

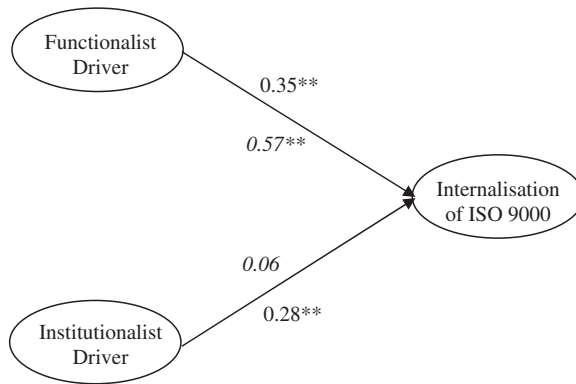
We present the results of the structural equation model (SEM) in Figure 1. The ratio of χ^2 (391.15) to degrees of freedom (236) is 1.66, less than the recommended value of 3.0 for a satisfactory fit of a model to data (Carmines and McIver 1981, Bollen 1989, Hair *et al.* 1998). In line with the prescriptions (Mulaik *et al.* 1989), the fit indices (NFI = 0.905, CFI = 0.957, GFI = 0.896) and the Root Mean Square Error of Approximation (RMSEA = 0.048) are deemed acceptable. The results of the six hypotheses are outlined below.

Both institutionalist and functionalist drivers are significantly associated with internalisation of ISO 9000 standards, supporting hypotheses 1 and 2. The results also show that the association between functionalist driver and internalisation is relatively stronger than that between institutionalist driver and internalisation. This concurs with the arguments suggesting that the internalisation of ISO 9000 standards is more strongly driven by the functionalist driver than by the institutionalist driver.

The results show that the internalisation of ISO 9000 standards is significantly related to operational performance, supporting hypothesis 3. We also find that operational performance is significantly related to business performance and this supports hypothesis 4. The results provide evidence that the impact of ISO 9000 on bottom line results (i.e. business performance) occurs through improved operational performance. We tested the direct association of internalisation of ISO 9000 practices with business performance and found it to be non-significant. Overall, this suggests that the operational performance mediates the effect of internalisation of ISO 9000 standards on business performance. We find that control variables, organisational size and the year of certification have no significant effect on both operational and business performance.

4.3. Differentiating high and low performing groups

We differentiate high and low performing firms based on operational performance of the firms. First, we computed the composite score of the operational performance using



The standardised path coefficient for high performing group are printed in italics

$\chi^2 = 300.36$	df = 202	RMSEA = 0.059	NFI = 0.880	CFI = 0.952	GFI = 0.883
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Figure 2. Path diagram for multi-group analysis. **: ($p < 0.01$).

the mean values of the four items of the scale. Based on the frequency distribution of the composite score, we used the median score (3.50) as the cut-off point for differentiating high and low performing groups. Firms scoring 3.50 or less were categorised as low performers and those scoring greater than 3.50 were categorised as high performers. The sample size for the high performing group is 140 and the sample size of the low performing group is 141. The multi-group structural equation model was then analysed in order to see the difference in the driver–internalisation link between the two groups. First, the constrained model was tested by setting all parameters between the two groups to be equal. Next, the unconstrained model was tested where the paths between the two drivers and internalisation were freely estimated. The results show that the unconstrained model has a better fit as indicated by lower χ^2 (300.36 versus 306.09) and acceptable fit indices (RMSEA = 0.059, NFI = 0.880, CFI = 0.952, GFI = 0.883). The result of multi-group analysis is presented in Figure 2.

The results indicate that the link between the functionalist driver and internalisation of ISO 9000 standards is significant for both low and high performing firms. However, the strength of the relationship is stronger among high performing groups than among low performing firms, supporting hypothesis 5. For the link between the institutionalist driver and internalisation of ISO 9000 practices we find that while for low performing firms this relationship is statistically significant, for high performing firms the relationship lacks support. Low performing firms show a stronger relationship between the institutionalist driver and internalisation of ISO 9000 standards than do high performing firms, and this supports hypothesis 6. We also note that the correlation between institutionalist and functionalist drivers is stronger among low performing firms than high performing firms. The findings suggest that, for low performing firms, both institutionalist and functionalist drivers go hand in hand; however, this is not the case for high performing firms. Internalisation of ISO 9000 standards in the low performing group is driven by both institutionalist and functionalist drivers, whereas in the high performing group only the functionalist driver influences the internalisation of ISO 9000 standards.

5. Discussion of the findings

5.1. *Institutionalist and functionalist drivers and internalisation of ISO 9000 standards*

The results of this study find a significant association between institutionalist drivers and internalisation of ISO 9000 standards in the overall sample. Boiral (2003) noted that the exponential growth in ISO 9000 certification can be attributed to these institutionalist drivers. Our results support this contention within the context of small and medium sized firms in Australia, which form the bulk of the sample. We find a significant positive association between functionalist drivers and internalisation of ISO 9000 standards. In the sample, the internalisation of ISO 9000 standards seems to be largely motivated by the firm's desire to improve quality, to develop a systematic management approach that fosters continuous improvement and to have a better control of operations. The results accord well with the highly prescriptive nature of ISO 9000 standards that have generated interest among managers for the last several years. ISO 9000 standards enable firms to formalise different aspects of management control.

Our examination of high performing firms reveals that the institutionalist driver is not significantly associated with internalisation of ISO 9000 standards (Figure 2). However, similar to the results obtained from the overall sample, the association between functionalist drivers and ISO 9000 internalisation was found to be significant in high performing firms. The results suggest that, for high performing firms, the motivation for implementing and internalisation of ISO 9000 standards is driven by the need for improving their operations by building a solid quality management system. In other words, these firms exploit ISO 9000 practices as an organisational resource for improving performance rather than simply pursuing the certification.

For low performing firms the associations of both institutionalist drivers and functionalist drivers with ISO 9000 internalisation were found to be significantly positive. The results suggest that low performing firms are influenced by normative, mimetic and coercive institutional pressures. ISO 9000 internalisation confers to these firms a level of legitimacy, even though their performance level is currently lacking. At the same time, these firms are also motivated to improve their operations, as evidenced by the significant relationship between functionalist drivers and ISO 9000 internalisation; however, the strength of this relationship is lower than that among high performing firms.

The results from the analysis of the relationship between motives and internalisation of ISO 9000 standards raises the question if high (low) performing firms rated their functionalist (institutionalist) motives higher than low (high) performing firms. To gain insights we conducted an additional analysis. Specifically, we examined if the ratings of functionalist and institutionalist drivers by high and low performing firms are significantly different. The results of the *t*-test suggest that, for institutionalist drivers, the mean score for high performing firms is significantly *higher* than the mean score for low performing firms (at a significance level of $p < 0.05$). The mean scores of high and low performing firms for functionalist drivers were not statistically significant. It is somewhat surprising that high performing firms do not show a significantly higher score on functionalist drivers than the low performing firms. More surprisingly, high performing firms also score higher on institutional drivers than do low performing firms. These results are important since they show that motivation alone does not sufficiently differentiate high from low performing firms. Instead, performance is driven by the way these firms channel their motives towards internalisation of ISO 9000 standards. For high performing firms, internalisation of ISO 9000 standards is solely explained in terms of functionalist drivers,

whereas for low performing firms, both insitutionalist and functionalist drivers are important for internalisation of ISO 9000 standards.

Overall, the above findings show that the extent to which institutionalist and functionalist drivers affect the internalisation of ISO 9000 standards will differentiate the real benefits gained from the standard. For high performing firms, the dominance of functionalist drivers leads them into a high level of internalisation, whilst in low performing firms, mixed motivations prevent them from properly putting the quality system in place, hence failing to produce significant benefits. Our findings therefore provide a further explanation for the link between motives for adopting ISO 9000 and organisational performance. Prior studies provide evidence that internal motives (i.e. functionalist drivers) have a significant relationship with benefits of ISO 9000 adoption, however external motives (i.e. institutionalist drivers) do not (Singels *et al.* 2001, Llopis and Tari 2003, Williams 2004). We extend this reasoning and highlight that internalisation of ISO 9000 standards forms an important intermediate link between motives and performance. Our results show that, due to competitive pressure, firms give a high level of importance to institutionalist drivers (as is evidenced in high scores for high performing firms), but these external motives are not associated with internalisation of ISO 9000 standards. Instead, we find that the functionalist driver is essential for internalisation of ISO 9000 standards.

5.2. Performance implications of internalisation of ISO 9000 standards

Internalisation of ISO 9000 standards was found to be significantly associated with operational performance. The basic guiding principles for internalisation of ISO 9000 standards – employee training in total quality, clear explanation and documentation of quality policy, objectives and procedures, maintenance of well-defined daily practices in compliance with ISO 9000 requirements and regular audit of processes for continuous improvement – aid in improving operational performance measures such as cost, quality, delivery and innovation. Operational performance, in turn, translates into improved business performance characterised in terms of sales, profits and market share. The lack of a significant direct relationship between internalisation of ISO 9000 standards and business performance substantiates the claim that ISO 9000 does not directly influence business performance. Instead, operational performance mediates the effect of internalisation of ISO 9000 standards on business performance.

These results clarify some of the mixed findings in extant research regarding the association of ISO 9000 standards and performance and help us to understand the variation in performance of ISO 9000 certified firms. The study shows that the benefits of ISO 9000 in terms of operational performance are derived from the internalisation of practices underlying ISO 9000 standards. In other words, it is not the certification, but the way firms attain it that matters (Hughes *et al.* 2000). The extant literature suggest that, by using ISO 9000 standards, firms improve their information gathering, human resource development, supplier and customer relations and overall quality (Rao *et al.* 1997). Studies have also questioned the results by showing a lack of association with higher quality (Guerin and Rice 1996), improved customer satisfaction (Terziovski *et al.* 1995), or better operational performance and foreign sales (Simmons and White 1999). We find that operational performance, when broadly conceptualised by considering specific aspects of quality (i.e. product performance), innovation (i.e. product innovation), delivery

(i.e. on-time delivery) and cost, is positively associated with internalisation of ISO 9000 standards.

5.3. Theoretical and managerial implications

The adoption of ISO 9000 practices is driven by two separate objectives, namely the true technical and organisational merit of the practice and the need to satisfy various institutional pressures. Our results highlight that organisations could be implementing ISO 9000 standards to achieve both these objectives (as observed in the case of low performing firms) or target it towards a single objective (as evidenced for high performing firms). Below, we offer a theoretical rationale for this finding.

During the past two decades when quality was heralded as the primary source of competitive advantage, the pressure for demonstrating high quality performance became the “rule of the game” (Garvin 1988, Schonberger 1992). In other words, a quality system became a symbol of corporate image without which firms cannot compete in the market (Paulson Gjerde and Slotnick 2004). In this case, ISO 9000 certification offers institutional value by providing evidence that the firm has the capability to deliver high quality products into the market (Hoyle 2000). The claim that the firm has been certified to ISO 9000 confers legitimacy upon which organisations may rely in enhancing organisational status and corporate reputation (Staw and Epstein 2000), particularly because of its worldwide adoption (Guler *et al.* 2002). However, as more and more firms are certified to ISO 9000 standards, it creates an isomorphism phenomenon among the certified firms. In this situation, the value of the certification as a differentiator diminishes. Instead, the real value comes from the effective internalisation of ISO 9000 standards for improving internal processes and operations. This is reflected in the results for high performing firms, which indicates a significant (non-significant) link between functionalist (institutionalist) drivers and the internalisation of ISO 9000 standards. For low performing firms the dual pressures exerted by functional and institutional drivers persist as they adhere to institutional pressure while pursuing the aspects of ISO 9000 standards that would potentially lead to improved internal processes. This diffused motivation limits the impact of the internalisation of ISO 9000 standards on operational performance.

From a theoretical point of view this study has demonstrated the use of a resource-based view (RBV) and institutional theory as potential theoretical lenses to understand the process of internalisation of ISO 9000 standards and the consequent impact of the internalisation process on performance. In line with the prescriptions of RBV, the guiding principles in ISO 9000 standards can be internalised in the form of organisational resources to enhance operational performance. This is reflected in the findings for high performing firms where the internalisation of ISO 9000 is driven by resource-based motivations (i.e. functionalist drivers). As per institutional theory, firms adopt the administrative innovation (i.e. ISO 9000 standards) in order to pursue its symbolic value or legitimacy. Our findings suggest that low performing firms are guided by institutional pressures, perhaps with the expectation that it would increase the confidence of customers, enhance organisational status, strengthen corporate reputation and thereby impact business performance (Rayner and Porter 1991, Buttle 1997). However, with an increasing number of firms becoming ISO 9000 certified, the certification process is only valued as an ‘entry ticket’ to compete and does not, on its own, lead to competitive success. In other words, ISO 9000 certification has become an order qualifier instead of being an

order winner. Ultimately from the customers' perspective, it is the ability of the supplier to deliver as per (and perhaps beyond) expectation that matters instead of the mere status of the supplier as an ISO 9000 certified firm.

From a managerial perspective, the study emphasises the need to recognise the different motives for implementing ISO 9000 standards within organisations. For a firm that is currently performing lower than the industry average, it is important to move away from pursuing ISO 9000 as an institutional legitimacy. Instead, it should be the basis for creating a commitment towards properly internalising ISO 9000 practices in the internal processes of the firm. Although the institutional pressures to be certified to ISO 9000 will always exist, the focus needs to be on what can be done internally to enhance firms' operational performance by using the guidelines prescribed by ISO 9000 standards. We find that a high performing firm crosses the stage of satisfying institutional pressure. Having seen the benefits of ISO 9000 adoption, these firms embark on continuous improvement, thereby increasing their operational performance.

The results of this study confirm the performance implications of implementing ISO 9000 standards. Firms need to be careful in their choice of the performance metric that they consider for evaluating the efficacy of ISO 9000 standards. We did not find support for the direct impact of internalisation of ISO 9000 standards on business performance, measured in terms of sales, market share and profits. Instead, we find that lasting improvement in business performance requires that the basic tenets of the management systems underlying ISO 9000 standards be directed towards improving product quality, reducing cost, improving delivery and innovation performance. Improvement in business performance would follow as a result of improved operations. This study therefore helps managers to develop realistic expectations on ISO 9000 implementation as well as the route which firms need to take before they can see the real benefits of the standard.

6. Conclusions and directions for future research

In this paper we draw on institutional theory and a resource-based view and examine the relationship between motives and internalisation of ISO 9000 standards. We relate ISO 9000 internalisation with operational performance and associate operational performance with improved business performance. The results suggest that firms in the overall sample implementing ISO 9000 standards were driven by the need to use the basic aspects of ISO 9000 standards towards improvements of internal processes. The institutional pressures created by customers, buyers, competitors and industrial policies were also significantly associated with internalisation of ISO 9000 standards. A closer examination of the data by means of segmenting the sample into high performing and low performing firms indicates that while the aggregate results regarding the association between motives and internalisation of ISO 9000 standards hold true for low performing firms, it appears that internalisation of ISO 9000 standards in high performing firms is driven only by the functionalist driver. We find that ISO 9000 internalisation is significantly associated with operational performance and operational performance, in turn, is significantly associated with business performance.

There are a few limitations of the study that present directions for future investigations. First, while objective performance measures would be ideal, we resort to perceptual measures given the constraints of obtaining objective performance measures in large-scale surveys. An examination of motivation, internalisation and objective performance

measures will further enhance our understanding. Second, the constituents of institutional pressure, i.e. competitors, customers, buyers, industrial policies, etc., can be individually examined in terms of their relationship with internalisation of ISO 9000 standards. It would be interesting to study if these constituents exert differential impacts on the internalisation of ISO 9000 standards. Third, our sample is restricted to Australia and is represented by small and medium sized organisations. In line with the increasing importance of context dependence in the quality management literature, it would be interesting to examine if the hypothesised relationships hold in varying contexts. For example, future studies can examine the relationships in geographic locations other than Australia. It would also be insightful to investigate the relationships in larger organisations.

In recent years, several studies have critically examined important aspects associated with internalisation of practices underlying ISO 9000 standards (e.g. Boiral (2003), Naveh and Marcus (2004) and Albuquerque *et al.* (2007)). Our study adds to this important stream of research and contributes to theory and practice by advancing our understanding of the key aspects underlying ISO 9000 standards. During the introduction stage of ISO 9000 standards, institutional pressure played an important role in implementation of ISO 9000 standards and helped firms achieve performance gains, especially market share and sales benefits due to the enhanced corporate image. The situation has changed in recent years. We assert that, in the present context, it is important to pursue internalisation of ISO 9000 standards by focusing on internal process improvement motives. Operational performance will follow as a consequence which, in turn, would lead to improved business performance.

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Appendix 1. The questionnaire

Company Profile			
1. Which industry sector does the company operate? _____			
2. How many people does this company employ? <input type="radio"/> Less than 20 <input type="radio"/> 20 to 49 <input type="radio"/> 50 to 99 <input type="radio"/> 100 to 499 <input type="radio"/> 500 to 999 <input type="radio"/> 1,000 or more			
3. How long this company has been certified ISO 9000? _____ years			
Reasons for implementation and maintenance of ISO 9000 This section is focused on the primary <u>reasons/motives</u> this company had in implementing ISO 9000 and pursuing certification.			
The primary motives or reasons			
To meet customer's demands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To match competitors' actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To enhance the company's image	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To gain preferred supplier status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To comply with industry policies or regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To combat poor quality performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To build a foundation for a systematic management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To have better control of operations of the business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To provide a foundation for continuous improvement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To realise the company's strategy for pursuing quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The process for ISO 9000 implementation This section is concerned with the <u>approaches</u> taken by this company in implementing ISO 9000 quality system.			
Key activities in implementing ISO 9000 standard			
All employees were trained in total quality concepts and ISO 9000 requirements during the implementation process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company's quality policy, objectives, and procedures were explained clearly to all employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(continued)

Appendix 1. Continued

Key activities in implementing ISO 9000 standard				
We clearly documented the quality policy and procedures for quality management and continuously update them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We always maintain our daily practices to comply with the documented procedures based on the ISO 9000 requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We conduct internal audit regularly and the results are used as a basis for improving our processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organizational performance				
This section is concerned with several key performance indicators as the relative performance of this company in the industry.				
Performance indicators	Weakest	Average	Leader	
Product performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Product innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost effectiveness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On time delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sales	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Profitability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market share	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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